

MANTECA VOR BUILDING SPECIFICATIONS

ELECTRONIC EQUIPMENT BUILDING FOR THE NEW MANTECA VOR AT THE STOCKTON METROPOLITAN AIRPORT STOCKTON, CALIFORNIA GENERAL SPECIFICATION

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GENERAL SPECIFICATION

PART 1 GENERAL

1.1 STATEMENT OF WORK

This specification, together with the referenced specifications, standards, and drawings, cover the requirements for the work associated with the design, fabrication, and delivery of a VOR (VHF OMNIDIRECTIONAL RANGE) Equipment building. The building will be used at the Stockton Metropolitan Airport in Stockton, California.

Work includes (but is not limited to):

Design and Fabrication of a 18' x 26' single outdoor concrete building to accommodate the VOR electronic equipment.

Design a Stainless Steel Box per attached drawing that will place on top of the building roof.

Providing a typical foundation design for the building.

Delivery of the building to the site and off-loading the building at the site.

Set up the building on the foundation provided by other.

Note: All fabrication, equipment installation, and initial testing shall be done indoors at the contractor's shop. The contractor shall allow open access to the FAA while fabrication and equipment installation is taking place.

The contractor is required to furnish all labor, materials (except Government furnished), services equipment, insurance, bonds, security notifications, licenses, permits, and fees in accordance with applicable federal, state and local regulatory requirements to complete the specified work. Any miscellaneous labor, equipment and/or materials not specifically detailed or specified, but required to complete the project, shall be provided as an integral part of the work

THIS IS A DESIGN/BUILD PROJECT. THE SALIENT FEATURES LISTED BELOW ARE MINIMUM REQUIREMENTS. THE ATTACHED DRAWINGS ARE PROVIDED TO GIVE THE CONTRACTOR A CONCEPTUAL IDEA OF A TYPICAL VOR SHELTER. THE CONTRACOR IS ENCOURAGED TO PROVIDE A NEW AND UNIQUE PROPOSAL THAT WOULD BEST BENEFIT THE FAA.

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1.1.1 Design and Fabrication – Salient Features (minimum requirements)

Building shall be concrete with a decorative aggregate surface, factory assembled, self-contained, and portable. All necessary material not otherwise indicated to the Government furnished, shall be provided by the shelter manufacturer. Contractor furnished material shall be integrated with the Government furnished material and made totally operational.

All work shall be in compliance with FAA Specification FAA-C-1217f, FAA Standard FAA-STD-019f, and the National Electric Code.

Structural:

Overall Dimensions: 17'-6" wide x 25'-6" long x 10'-7" high. The building will be placed on a concrete slab 17'-8" c 25'-8".

Room shall be free spanning (no interior columns or supports).

Loadings: 200 psf floor, 100 psf roof (live load), 85 mph sustained wind (exposure C per 2006 IBC).

Seismic Design Category: Submit adequate for Stockton, California.

Exterior Walls: Concrete aggregate finish (see color below)

Interior Walls shall accommodate 400 lbs. per linear feet and be finished with ¾" painted **fire proof** plywood. Ceiling shall be finished with ½" painted **fire proof** plywood.

Insulation: LTTR* R-Value 25.0 for Roof; LTTR* R-Value 19 for walls and floor.

- ✚ Long Term Thermal Resistance values provide a 15 year time-weighted average in accordance with CAN/ULC-S770.
- ✚ Roof: Waterproofed as approved;
- ✚ Floor beams shall be hot dipped galvanized, or as approved.
- ✚ The building shall be designed and fabricated to prevent the entry of rain, snow, and other moisture. The building shall also be impervious to rodents. Welded threaded couplings (1/2 length) shall be used at exterior entry points.
- ✚ Approximate total weight of finished building (with equip) = 110,000 lbs
- ✚ Min Roof slope shall be ¼" per foot.

Color:

Exterior: Finish/color shall blend in with the surroundings within the Stockton Airport. Final finish/color shall be approved by the FAA Project Engineer.

Interior Walls: Sherwin Williams White (Fire Proof paint).

Interior side of external doors, interior doors, and interior door trim: ANSI 70 Gray, as approved.

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Piping: Gray color for exterior vents as approved. Epoxy metal primer with aliphatic urethane coating

HVAC:

VOR Electronic Equipment Room:

Provide and install two each self contained, single heat/air units with 3 ton air conditioning, 5 KW heating and integrated thermostat. Units shall have scroll compressors.

Provide and install one each approx ¼ HP CFM Exhaust Fan with hydrogen sensor for battery exhaust.

Supplemental Grounding:

Run grounding electrode conductors from the service disconnected to the wall penetrations as approved. Leave at least 20' of slack at the walls (to be connected to the shelter counterpoise by the field contractor).

In the VOR equipment room, provide and install a "MAIN", "SINGLE POINT", and two "MULTIPOINT" ground plates. Connect ground plates per FAA Standard FAA-STD-019f.

Connections to the ground plates shall be made with stainless steel bolts, flat washers, disc spring washers, and nuts (do not install washer between bonded members). For the Main and Furthest away Supplemental Main ground plate in the VOR equipment room, supply a 20 ft long 500Kcmil cable with a two stud hole type compress lug, as approved

Provide and install ground lugs (to accommodate #4/0) on shelter skids at all four corners.

Provide and install Surge Protection for the main service disconnect in the equipment room and the main distribution panel in the VOR room.

Surge arrestor for the main service disconnect shall be LPC #20708-7.

Surge arrestor for the distribution panels shall be LPC # 2030-3U-G.

Lighting:

Interior fluorescent lighting shall be mounted with a 1 5/8" offset from the ceiling and have wire guard diffusers, as approved. Additional emergency lighting shall be provided with 90 minute backup). Photo electrically controlled exterior high-pressure sodium light shall be installed at the exterior door, and on the other building faces where there is no door. An override switch labeled "Exterior Light Photocell – ON/OFF" shall be installed for each light.

Provide and install all necessary outlets (electrical and telephone), receptacles, switched, junction boxes, terminal boxes, smoke detectors, and door alarms (intrusion switch's) as required. Use clamp backs to provide space between the conduits and the mounting surfaces (walls). Provide an exterior GFI outlet with weatherproof lockable enclosure

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(Hoffman #A-8R86HCR) on each side of the building as approved. The bottom of each GFI enclosure shall have a 2" sealable opening, as approved.

Provide spare fused for all disconnect switches.

Exterior double doors shall be equipped with a lockable panic-type door opener w/Best construction core, as approved. Provide six keys and one core puller key. Exterior door shall have a 12" high kick plate, as approved. Door shall have automatic door closures (with provisions for door to be held open)

Provide and install wireway as shown on the conceptual drawings, as approved.

Provide and install miscellaneous furnishings, as approved. Items include (but are not limited to):

- ✚ Commercial Storage Cabinet 36wx18dx72h, for the VOR room (Grainger #3w287)
- ✚ Commercial Storage Cabinet 36wx18dx42h, for the VOR room (Grainger #1UFD3)
- ✚ 72" w x 30"d Work Bench for equipment room:
 - Drawer/1 Panel Leg, with Butcher Block Maple) as approved).
 - Electronic Riser (as approved).
 - Back and End Stops (as approved).
 - Electronic Riser Wiring Kit (as approved)
- ✚ Drafting Style Chair for Work Desk (Grainger #1FAU9).
- ✚ Exterior Lights, 2 each, 70 W High Pressure Sodium (Grainger #5MM59).
- ✚ Interior Emergency Lights, 2 each (Grainger # 4PH07).
- ✚ 10 lb Fire extinguisher one each.
- ✚ Heavy Duty Service Cart (Grainger # 5M716).
- ✚ Step Stool (Grainger #5M656).
- ✚ Emergency Eyewash Station (Grainger #6JD83).
- ✚ Angel Broom (Grainger 3BE88).
- ✚ 28 1/8 qt Polyethylene Wastebasket (Grainger #5W001).
- ✚ Disposable Wipes (Grainger #2TU43).
- ✚ Bottle (32 oz) each of Commercial Grade Windex and 409.
- ✚ Squeeze Tube of Silicone Sealant (exterior/interior). One each of Clear and White.
- ✚ 12/24 hour clock, Sporty #8399-1A (available at www.sportys.com).
- ✚ Floor Matt, 36" x 48" at entrance door.
- ✚ Spare floor tiles, at least 12 each, as approved.
- ✚ Extra touch up paint (with mixing instructions if applicable) and 4 each small mixing containers, stir sticks, and 4 each touch up paint brushes (1") , as approved.

Provide and install two-line phones in the equipment room.

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Provide and install a 10 lb fire extinguisher (CO2 type) in the equipment room.

Provide identification for all panel boards, safety switches, enclosures, junction box's etc. per FAA-C-1217f, and as approved. Names plates shall be black with white 3/8" high engraved letters.

Provide identification signs on the building door as approved.

1.1.2 Foundation Design for the Building

Provide a typical foundation design, based on normal soil conditions, for the building. The design shall be approved and stamped by a Professional Engineer.

1.1.3 Delivery and off-Loading the Building

The contractor shall be totally responsible for the delivery off the building to the site at the Stockton Metropolitan Airport, Stockton, California. This includes the contractor's responsibility for meeting and complying with the Airport's security and access requirements.

The floor of the delivered building shall be covered and protected, as approved. Loose material inside the building (desk, chairs, cabinets, etc). shall be secured to prevent during shipping. Any dirt or debris that gets accumulated on the building during delivery shall be cleaned off.

Once at the site, the contractor shall be responsible for off-load the building and connecting it to the foundation. The building foundation will be installed by others. All items furnished to the contractor as part of the VOR system, but not installed as part of the shelter shall be shipped with the building to the Airport.

Show a separate cost breakdown for shipping.

1.2 REFERENCES

FAA-C-1217f	Electrical Work. Interior
FAA-STD-019f	Lightning Protection, Grounding, Bonding, and Shielding.
	National Electric Code

1.3 DRAWINGS

SCK-B-VOR	General layout (conceptual)
SCK-B-VOR	Component Configuration
SCK-B-VOR	Stainless steel box

The above drawings are provided to show a general configuration and minimum requirements.

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The contractor is encouraged to submit on improvements and enhancements to the standard drawings.

1.4 SUBMITTALS

1.4.1 Building Design Drawings

Building design drawings shall be provided in hardcopy and electronically in AutoCAD version 2008 format or Micro Station. Text documents shall be provided in hardcopy and electronically in Word format.

1.4.2 Material

The contractor shall submit catalog data, cut-sheets, samples, and any other required information to the FAA Project Engineer for approval of the following:

Contractor furnished electrical components including enclosures, cables, connectors, and conduits.

HVAC components.

Contractor furnished hardware.

Labels.

Misc furnishings including shelves, cabinets, desk, chairs, carts, etc..

Additional items deemed necessary by the Project Engineer.

1.4.3 Testing

The contractor shall complete (at his own expense) all testing as required by these specifications. The results shall be submitted to the FAA Project Engineer. Required testing includes, but is not limited to, the following:

Ring out and continuity verification to insure proper termination.

Cables (see FAA-C-1217f, 5.3.2)

Load balancing (see FAA-C-1217f, 5.5.3)

Insulation resistance test (see FAA-C-1217f, 5.3.4)

Neutral isolation test (see FAA-C-1217f, 5.3.5)

PART 2 PRODUCTS

2.1 CONTRACTOR FURNISHED MATERIAL

The contractor shall furnish all material that is required and/or otherwise indicated to the Government furnished. Materials furnished by the contractor shall be new, the standard products of manufactures regularly engaged in the production of such materials, and of the manufacturer's latest designs that comply with the specification requirements.

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The list of the contractor furnished material includes, but is not limited to:

- ✚ Main Disconnect, spare fused, and surge arrester
- ✚ Manual Transfer Switch
- ✚ Distribution panel (32 breakers) and surge arrestor (VOR equipment ,wall outlets and light fixtures A/C etc.)
- ✚ External Telco Box
- ✚ Power, control, and grounding cable
- ✚ Ground Plates
- ✚ Electrical fittings, conduits, and components
- ✚ HVAC components and controls
- ✚ Labels for electrical components
- ✚ 4' x 4' x ¾" thick plywood painted with Fire Proof paint (for mounting telco equipment)
- ✚ **Stainless Steel box** placed on top of the roof with access door (piano hinges) and conduit opening per attached sketch

PART 3 EXECUTIONS

3.1 FABRICATION SCHEDULE

Work shall be completed within 90 days of the start date.

3.2 AS-BUILT DRAWINGS

Provide As-Built drawings in AutoCAD version 2008 or MicroStation

3.3 INSTALLATION AND WORKMANSHIP

All work shall be performed according to the intent of the contract, and normal and accepted industry and Government standards.

The contractor shall be regularly engaged in the fabrication of shelters with existing plant facilities equipped for year around shelter manufacturing.

The contractor shall be capable and experienced in transporting shelters to active airports and remote sites using specialized trucks, trailers and cranes.

All work shall be accomplished by skilled workers regularly engaged in this type of work. Where required by local regulations, the workers shall be properly licensed. Electrical terminations and splices shall be done by a qualified electrician.

The contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the FAA Project Engineer in every way possible. The contractor shall have a competent superintendent on the work site at all times who is fully capable of

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reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the Project Engineer.

3.4 CONTRACTOR'S ACCEPTANCE INSPECTION

Prior to shipping the building to the site, the contractor shall participate in a Contractor's Acceptance Inspection (CAI) with the FAA Project Engineer, or his representative. Items found to be deficient shall be corrected immediately or as directed.

3.5 Warranty

The pre-fabricated building structure shall have five (5) years warranty. All components shall have warranty of one year parts and labor. Air Conditioning unit vendor shall provide the warranty period.